

BOOK REVIEW

ON THE EXPERIMENTAL MORPHOLOGY OF THE ADRENAL CORTEX. By HANS SELYE AND HELEN STONE. 1950. vii + 105 pages, 62 figures. \$2.25. Charles C. Thomas, Springfield, Illinois.

Best known for his work on the adaptation syndrome and diseases of adaptation which was presented in 1946, Doctor Selye is at present Professor and Director of the Institute of Experimental Medicine and Surgery at the University of Montreal. Helen Stone is associated with the same Institute.

This monograph of the American Lecture Series is devoted to the description of morphological alterations of the adrenal cortex elicited by various combinations of anterior pituitary preparations, thyroxine, testoids and corticoids. The study was instituted to establish morphologic criteria, which would permit the appraisal of adrenocortical function and, in addition, to supply further information regarding the existence or non-existence of several qualitatively different corticotrophic agents.

The first portion of the study describes 6 experiments, utilizing adult Wistar Albino rats, in which the following results were noted. Lyophilized anterior pituitary tissue (LAP) causes an increase in adrenal weight which is enhanced by an increase of ingested protein. Methyl testosterone causes a decrease in adrenal weight which is not influenced by a high protein diet and it inhibits the adrenal enlargement normally caused by thyroxine or non-specific stress. It does not prevent the enlargement of the gland caused by LAP, however. Thyroxine causes moderate enlargement and when combined with LAP, it increases the corticotrophic effect of the latter. Unilateral nephrectomy and high sodium intake were unimportant with regard to their effect on adrenal weight changes induced by LAP, thyroxine or methyl testosterone. There were no important differences in the response of either male, castrate male or female animals to the various compounds or combinations of compounds used. Desoxycorticosterone acetate does not inhibit adrenal enlargement resulting from anterior pituitary extract nor does it cause "compensatory atrophy" of the adrenal with high sodium intake.

The second half of the monograph is devoted to observations of the typical structural changes that can be experimentally produced in

the adrenal cortex. This part of the study endeavors to demonstrate that, in addition to the non-specific morphological alterations due to simple stimuli, the adrenal cortex can respond to specific stimuli with more precise morphological alteration. According to the authors this characteristic of the adrenal cortex speaks against the theory of a single corticotrophic agent but should this be the case, the simultaneous presence of other hormones might explain the variability in the morphology.

On the basis of histological and cytological examination of the adrenal cortical tissues of the animals used in the experiments referred to above and, in addition, experience gained from experimentation during the last 10 years, the following qualitatively different morphologic changes were distinguished by the authors: atrophy, hypertrophy, hyperplasia, capsular adenoma, lipid granule storage or discharge, cholesterol granule storage or discharge, plasmal granule storage or discharge, ascorbic acid granule storage or discharge, fatty metaplasia, colloid formation, fibrinoid degeneration, cytolysis, "chromidiosis," lymphoid and myeloid metaplasia, formation of lumina within the cortical parenchyme, holocrine secretion, hyperemia, hemorrhagic infarction, focal necrosis and "toxic involution."

The printing, paper, binding, and general plan of the book are good but, contrary to the authors' expressed opinion that the material was too diverse and too voluminous, it might have been more advisable to present the findings as articles in a related periodical. The meaning of the text is sometimes obscure and difficult to follow. It also seems that some of the analyses of the morphologic alterations should have been reserved until more complete investigations are reported. Despite the fact that there are notations made to related papers throughout the monograph and a list of references at its end, research into the literature is lacking. Articles by several prominent investigators were evidently not consulted. A study of this sort which attempts to establish the relationship between morphological alteration and functional state of the gland might embody a more representative review of the literature.

FRANK D. ALLAN

Department of Anatomy
Louisiana State University
School of Medicine